

Question	Answer		
7.	<ol style="list-style-type: none"> 1. B is the mdpt. of \overline{AC}. (Given) 2. $\overline{AB} \cong \overline{BC}$ (Def. of mdpt.) 3. $AB = BC$ (Def. of \cong segs.) 4. $AD + DB = AB$, $BE + EC = BC$ (Seg. Add. Post.) 5. $AD + DB = BE + EC$ (Subst.) 6. $AD = EC$ (Given) 7. $DB = BE$ (Subtr. Prop. of $=$) 		
8.	<pre> graph TD A["∠3 is a rt. ∠."] -- Given --> B["m∠3 = 90°"] B -- Def. of rt. ∠ --> D["90° + m∠4 = 180°"] C["∠3 and ∠4 are supp."] -- Lin. Pair. Thm --> E["m∠3 + m∠4 = 180°"] E -- Def. of supp. ∠ --> D D -- Subst. --> F["m∠4 = 90°"] F -- Subtr. Prop of = --> G["∠4 is a rt. ∠."] G -- Def. of rt. ∠ --> H["∠4 is a rt. ∠."] </pre>		
9.	<table border="1"> <tr> <td> <ol style="list-style-type: none"> 1. $\angle 1 \cong \angle 4$ 2. $\angle 1 \cong \angle 2$ 3. $\angle 4 \cong \angle 2$ 4. $m\angle 4 = m\angle 2$ 5. $\angle 3$ and $\angle 4$ are supp. 6. $m\angle 3 + m\angle 4 = 180^\circ$ 7. $m\angle 3 + m\angle 2 = 180^\circ$ 8. $\angle 2$ and $\angle 3$ are supp. </td><td> <ol style="list-style-type: none"> 1. Given 2. Vert. \angle Thm. 3. Trans. Prop. of \cong 4. Def. of $\cong \angle$ 5. Lin. Pair Thm. 6. Def. of supp. \angle 7. Subst. 8. Def. of supp. \angle </td></tr> </table>	<ol style="list-style-type: none"> 1. $\angle 1 \cong \angle 4$ 2. $\angle 1 \cong \angle 2$ 3. $\angle 4 \cong \angle 2$ 4. $m\angle 4 = m\angle 2$ 5. $\angle 3$ and $\angle 4$ are supp. 6. $m\angle 3 + m\angle 4 = 180^\circ$ 7. $m\angle 3 + m\angle 2 = 180^\circ$ 8. $\angle 2$ and $\angle 3$ are supp. 	<ol style="list-style-type: none"> 1. Given 2. Vert. \angle Thm. 3. Trans. Prop. of \cong 4. Def. of $\cong \angle$ 5. Lin. Pair Thm. 6. Def. of supp. \angle 7. Subst. 8. Def. of supp. \angle
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10.	<p>Since $\angle 1$ and $\angle 2$ are comp., $m\angle 1 + m\angle 2 = 90^\circ$. $\angle 1 \cong \angle 3$ by Vert. \angle Thm. Thus $m\angle 1 = m\angle 3$. By subst., $m\angle 2 + m\angle 3 = 90^\circ$, so $\angle 2$ and $\angle 3$ are comp.</p>		
12.	90° ; $\cong \angle$ supp. \rightarrow rt. \angle		
14.	2		

Question	Answer
16.	8
17.	A; the diagram is marked with the Prove information instead of the Given information.
18.	<pre> graph TD A["∠1 and ∠2 are supp."] -- "Lin. Pair Thm." --> B["m∠1 + m∠2 = 180°"] B -- "Def. of supp. ∠" --> C["m∠1 + 63° = 180°"] D["m∠2 = 63° Given"] --> C C -- "Subst." --> E["m∠1 = 117°"] E -- "Subtr. Prop. of =" --> F[" "] </pre> <p>Flowchart for Question 18:</p> <ul style="list-style-type: none"> Start: $\angle 1$ and $\angle 2$ are supp. Reason: Lin. Pair Thm. Equation: $m\angle 1 + m\angle 2 = 180^\circ$ Reason: Def. of supp. \angle Equation: $m\angle 1 + 63^\circ = 180^\circ$ Reason: Subst. (from $m\angle 2 = 63^\circ$ Given) Equation: $m\angle 1 = 117^\circ$ Reason: Subtr. Prop. of =
19.	Possible answer: Both \angle adj. to given rt. \angle must be rt. \angle because they form lin. pairs with the given \angle . The fourth \angle is a vert. \angle of given \angle , so it, too, is a rt. \angle . Since all 4 \angle are rt. \angle , they are all \cong by Rt. \angle \cong Thm.
20.	Answers will vary.
24.	<pre> graph TD A["m∠4 + m∠3 + m∠5 = 180°"] -- "∠ Add. Post. & Lin. Pair Thm." --> B["m∠4 + m∠3 + m∠5 = m∠1 + m∠6"] C["m∠1 + m∠6 = 180°"] -- "Lin. Pair Thm." --> B B -- "Subst." --> D["m∠4 + m∠5 = m∠6"] E["∠1 ≅ ∠3"] -- "Given" --> F["m∠1 = m∠3"] F -- "Def. of ≅ ∠" --> D D -- "Subtr. Prop. of =" --> G[" "] </pre> <p>Flowchart for Question 24:</p> <ul style="list-style-type: none"> Equation: $m\angle 4 + m\angle 3 + m\angle 5 = 180^\circ$ Reason: \angle Add. Post. & Lin. Pair Thm. Equation: $m\angle 4 + m\angle 3 + m\angle 5 = m\angle 1 + m\angle 6$ Reason: Subst. Equation: $m\angle 4 + m\angle 5 = m\angle 6$ Reason: Subtr. Prop. of = Equation: $\angle 1 \cong \angle 3$ Reason: Given Equation: $m\angle 1 = m\angle 3$ Reason: Def. of $\cong \angle$

Question	Answer
26.	<p>It is given that $\angle 2$ and $\angle 5$ are rt. \angles. By Rt. $\angle \cong$ Thm., $\angle 2 \cong \angle 5$. By def. of \cong \angles, $m\angle 2 = m\angle 5$. It is also given that $m\angle 1 + m\angle 2 + m\angle 3 = m\angle 4 + m\angle 5 + m\angle 6$. By Subtr. Prop. of $=$, $m\angle 1 + m\angle 3 = m\angle 4 + m\angle 6$. $\angle 3 \cong \angle 6$ by Vert. \angle Thm. By def. of \cong \angles, $m\angle 3 = m\angle 6$. By Subtr. Prop. of $=$, $m\angle 1 = m\angle 4$. So by def. of \cong \angles, $\angle 1 \cong \angle 4$.</p>